

REMARKS

With this paper, claims 1-4, 13, 18-19, and 21-39 are presently pending, of which claims 1, 28, and 39 are independent, and claim 39 is a new claim.

The most recent Office Action mailed July 11, 2006 ("*Office Action*"), rejected claims 1-4, 8, 13, 18-19, 21, 23-25, and 27-38 under 35 U.S.C. § 103(a) over U.S. Patent No. 6,708,336 to Bruette ("*Bruette*") in view of U.S. Patent No. 6,347,314 to Chidlovskii ("*Chilovskii*"). The *Office Action* also rejected claims 22 and 26 under 35 U.S.C. § 103(a) as being unpatentable over *Bruette* in view of *Chidlovskii*,¹ and further in view of U.S. Patent No. 4,598,385 to Kessels, et al. ("*Kessels*").

Applicants' invention as recited in amended independent claim 1 (and 28 – computer program product) includes, in a system including a television and a video transmission medium, wherein interactive broadcast data text descriptions such as electronic program guide information, news headlines, sports scores, or other similar kinds of periodically updated information that can be displayed as text simultaneously with other programming is transmitted across the video transmission medium, and wherein the system also includes a management system having a digital processor for processing one or more unique digital signatures that correspond to the interactive broadcast data, and an input device for inputting other digital data that corresponds to user instructions input by a user when searching for particular interactive broadcast data, a method for efficiently searching the interactive broadcast data in response to a string of text input by a user in order to identify the particular interactive broadcast data desired by the user, the method comprising receiving interactive broadcast data at the management system, said interactive broadcast data having unique binary signatures that each uniquely identifies an entire one of multiple electronic program guide entries for the received interactive broadcast data for each of the unique binary signatures created prior to transmission across the video transmission medium using a first function adapted to convert alphanumeric text in each electronic program guide entry of the interactive broadcast data into any of the unique binary signatures having a fixed number of bytes, and storing the unique binary signatures at the management system; inputting from the input device to the management system a user-entered text string; selecting and using a second function that is adapted to convert the user-entered text string into a unique

¹ Although the prior art status of the cited art is not being challenged at this time, Applicant reserves the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

binary signature that is stored at the management system, the unique binary signature of the user-entered text string having the same number of fixed bytes as the unique binary signature converted by the first function for the interactive broadcast data; retrieving and comparing the unique binary signatures of the interactive broadcast data text descriptions to the unique binary signature of the user-entered text string; and based on the comparison, the management system identifying one and only one item of interactive broadcast data that matches the input text string and returning all of the alphanumeric text for the matching electronic program guide entry, otherwise the management system identifying no match.

In addition, Applicants invention as recited in new independent claim 39 includes, at a management system having a digital processor for processing one or more unique digital signatures that correspond to a interactive broadcast data received across a video transmission medium, the interactive broadcast including alphanumeric electronic program guide information to be displayed on a video display device, a method for efficiently searching the electronic program guide information in response to a string of text input by a user in order to identify the particular interactive broadcast data desired by the user, the method comprising receiving electronic program guide data for a plurality of program events, each program event having a unique alphanumeric text description; converting each unique alphanumeric text description to a fixed-length binary signature that is the same length for each query; receiving a plurality of queries from a user, each query being converted from alphanumeric text to a fixed length binary signature that is the same length for each user query; comparing each electronic program guide entry by comparing each electronic program guide signature with any of the signatures of the converted user queries; and returning the entire alphanumeric text description of an electronic program guide description that has a fixed-length binary signature that at least partly matches any of the signatures of the converted user queries.

In contrast, the *Chidlovskii* reference teaches a method for enhancing the efficiency of queries for database records broken into various cache locations. For example, *Chidlovskii* teaches a method of "query caching," in which prior user query results can be searched at least partly from one or more cache locations, or sent to a server as appropriate. *E.g.*, col. 1, ll. 35-40. To do this, *Chidlovskii* discloses converting terms and results within cache locations into various binary term signatures, and further combining the term signatures of each record to create binary region signatures. *Compare* col. 2, ll. 34-49, *with* col. 5, l. 61 – col. 6, l. 16. Thus, when a user

enters a particular query, the query is converted into a binary query signature, which is then compared with the region signatures to find part or full matches to contents of a particular cache location. *E.g.*, col. 2, ll. 22-61; col. 10, l. 50 – col. 11, l. 42; 9. ll. 27-36. Full matches to a region signature invite further searching among term signatures in that region, while part matches to a region signature invite further searching among term signatures for that cache location region as well as other part matches to other region signatures, or sending the remainder of the query to a server. *Id.*, *see also* col. 7, l. 43 – col. 8, l. 38; col. 9, ll. 27-36.

The *Chidlovskii* reference, therefore, fails to teach or suggest, whether singly, or in combination with the *Bruette* reference, that an entire electronic program guide record is converted into a binary signature, and/or that a match to the electronic program guide signature would return all of the alphanumeric text for the electronic program guide entry, such as recited in amended claim 1. For example, *Chidlovskii* teaches searching *only* region signatures at first, rather than all available signatures (*i.e.*, analogous to both term and region signatures). *E.g.*, col. 2, ll. 22-61; col. 10, l. 50 – col. 11, l. 42. Furthermore, *Chidlovskii* teaches that a region match simply invites a further search among underlying search term signatures or sending the search remainder to a server, rather than returning the entire alphanumeric text of an electronic program guide. Col. 8, ll. 11-31.

In addition, the *Bruette* reference fails to teach these limitations, whether singly or in combination with *Chidlovskii*. For example, the *Bruette* reference discloses technology that involves searching each alphabetical character in an EPG (electronic program guide), where each character has been converted into a numerical equivalent based on a traditional phone pad letter to number conversion. When a user begins a search, the user types in the numbers corresponding to the letters of a search phrase or term using a telephonic-based keypad. *E.g.*, col. 7, ll. 9-37; *see also* Figure 3. The disclosed system then compares each entered number to all of the converted numbers stored in a database for each term in the particular EPG, and then *automatically selects a matching channel*. *Id.*; *see also* col. 7, l. 40 – col. 8, l. 18. As with *Chidlovskii*, therefore, nothing in the *Bruette* reference teaches searching all of the single binary signatures that are unique for each entire electronic program guide record, and then returning *all of the alphanumeric text* for the electronic program guide record upon identifying a match. Accordingly, Applicants respectfully submit that independent claims 1, 28, and 39, and the

corresponding dependent claims, each of which contain these or similar limitations, are allowable over the rejections of record.

With further respect to independent claim 39, however, Applicants note that *Chidlovskii* fails to disclose or even suggest downloading electronic program guide data that contains "a plurality of program events." For example, *Chidlovskii* teaches that the information downloaded to cache locations is based exclusively on prior user queries, which may or may not form a complete answer to a future user query. In addition, Applicants note that neither *Bruette* nor *Chidlovskii* teach or suggest "converting each unique alphanumeric text description to a fixed-length binary signature that is the same length for each signature." At the outset, this is impossible with *Bruette*, since the converted number length of each term is proportional to the alphabetical length of each term. Even still, the *Bruette* and *Chidlovskii* references convert only individual terms to a numerical value, and/or derive a region signature from the already-converted numerical values, rather than creating one unique binary signature directly from an entire, alphanumeric description of an electronic program guide.

Applicants respectfully submit, therefore, that these limitations in claim 39, as well as similar limitations found in amended claims 1 and 28, provide additional bases of patentability over the cited references of record.

As a final matter, Applicants respectfully traverse the combination of the *Bruette* and *Chidlovskii* references. At the outset, for example, Applicants explicitly state in the Background section that the type of character-to-character matching technology taught by *Bruette* is a problem in the art. See ¶¶ 7-8. Furthermore, although the *Chidlovskii* reference teaches matching technology using binary signatures, the type of information searched in *Chidlovskii* is entirely different from what is searched in *Bruette*. Specifically, *Chidlovskii* teaches searching prior query terms and results that were pulled by the user's computer system and cached locally. Clearly, this is not electronic program guide information, such as taught by the *Bruette* reference.

Nevertheless, these differences in data to be searched further result in wholly different conversion and search methods, which are not applicable to each other. In particular, the relatively simple conversion and search methods of *Bruette* using a remote control would be especially inefficient not only with the amount of data meant to be searched with *Chidlovskii*, but also with the type of in-depth, inexact searching in *Chidlovskii*. By contrast, it would not be obvious to improve the *Bruette* teachings with *Chidlovskii*, at least in part since the *Chidlovskii*

reference states that efficiency gains are made when searching greater amounts of static, locally-cached data (col. 2, ll. 36-41). This contrasts starkly with electronic program guide data, which are specifically designed to change every few minutes or hours. Thus, one of ordinary skill would be readily aware that the binary conversion and hierarchical search methods of *Chidlovskii* are unlikely to add efficiency to the teachings of *Bruette*, and may even add unnecessary complexity (and potentially a slow user experience when using a remote control) to searching continually changing electronic program guide data.

Applicants respectfully submit, therefore, that, not only do the *Bruette* and *Chidlovskii* references fail to teach each limitation of the amended and new independent claims, whether singly or individually, but also that there is no teaching, suggestion, or motivation to combine these references, which deal with quite distinct technologies. As such, the combination is improper.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

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